REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 6 and 13 have been cancelled.

New claims 42 and 43 have been added.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1, 4, 5, 7-12, and 14-41 are now pending in this application. Claims 7-12, 14, 16-18, 20-34, 37, and 38 are withdrawn from consideration.

Information Disclosure Statement

An Information Disclosure Statement and PTO/SB/08 form were submitted on August 9, 2010. Applicant respectfully requests that the Office provide a signed and initialed copy of the PTO/SB/08 form with the next Office correspondence.

Rejection under 35 U.S.C. § 112

Claim 35 is rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. This rejections is respectfully traversed.

Applicant respectfully submits that one of ordinary skill in the art would understand the meaning and scope of claim 35. In addition, Applicant respectfully submits that the disclosure of Applicant's application provides context for one of ordinary skill in the art to understand the meaning and scope of claim 35. For example, at least page 5, lines 6-38; page 7, lines 14-27; and page 8, lines 14-27 provide context for one of ordinary skill in the art to understand the meaning and scope of claim 35.

The Office argues on page 10 of the Office Action that the disclosure of Applicant's application, including the exemplary passages noted above, do not clarify the meaning of "a few nanometers," as recited in claim 35, because the specification only mentions a few nanometers as a size range. Applicant respectfully disagrees because Applicant's disclosure, including the exemplary passages describe exemplary processes for how the nanoparticles can be manufactured. Such processes and the other disclosures in Applicant's disclosure do provide guidance to one of ordinary skill in the art to understand that scope and meaning of claim 35.

For at least the reasons discussed above, reconsideration and withdrawal of this rejection is respectfully requested.

Rejections under 35 U.S.C. § 103

Claims 1, 4, 15, 19, 35, 36, 39, and 41 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over CN 1,413,797 to Peng *et al.* (hereafter "Peng") in view of U.S. Patent No. 5,916,635 Ishii *et al.* (hereafter "Ishii"). This rejection is respectfully traversed.

The Office suggests on pages 4-5 of the Office Action that Peng discloses a method of soldering using an active connection agent prepared from nanometer powder which was mixed with water, organic cellulose, and flux.

However, Peng does not disclose or suggest a brazing flux for the brazing of individual heat exchanger parts that comprises, a flux comprising a base material and nanoparticles, wherein the flux contains nanoparticles in an amount between 0.01% by volume and 10% by volume, and wherein the nanoparticles comprise nanoaggregates dispersed in an organic polymer, as recited in claim 1. Claims 4, 15, 19, 35, and 36 depend from claim 1.

Ishii discloses water-based hydrophilic coatings and fin materials for heat exchangers that use such hydrophilic coatings. See Ishii at col. 1, lines 8-12. The Office asserts on page 4 of the Office Action that Ishii discloses that the hydrophilic coatings are produced by

mixing colloidal silica, water-soluble polymers, and anionic surfactants over aluminum fins and then drying the mixture.

However, Ishii does not remedy the deficiencies of Peng because Ishii also does not disclose or suggest a flux comprising, among other things nanoparticles comprising nanoaggregates, as recited in claim 1. Ishii is silent in regard to these features.

The Office argues on page 11 of the Office Action that although the combination of Peng and Ishii does not disclose or suggest a flux that contains nanoaggregates, as recited in claim 1, one of ordinary skill in the art would have expected that the flux of Peng and Ishii would contain such nanoaggregates. The only argument the Office provides in support of this assertion is that the flux of Peng and Ishii would be identical or substantially identical to the claimed flux.

However, this is not the case because Peng and Ishii are silent in regard to nanoaggregates. In addition, as noted by the Office on page 4 of the Office Action, the mixture of Ishii includes an anionic surfactant, which would counter a tendency of nanoparticles to agglomerate and form a nanoaggregate in the mixture. In fact, Ishii teaches that anionic surfactants counter problems due to aggolomeration of the silica, thus teaching away from using a mixture or flux that includes nanoaggregates. See Ishii at col. 3, lines 23-35, and col. 5, line 55, to col. 6, line 3. As a result, the combination of Peng and Ishii would not include nanoaggregates, as recited in claim 1, because Ishii teaches away from such nanoaggregates.

One of ordinary skill in the art would not have combined the teachings of Peng and Ishii to arrive at the invention of claim 1. The brazing flux of claim 1 is a brazing flux useful for brazing in an inert gas atmosphere. The use of such a flux can advantageously convert an aluminum surface under such an atmosphere, which in turn converts a surface layer of a core material of a heat exchanger and exhibits corrosion resistance, light absorption, and hydrophilic behavior. For example, such corrosion resistance could be provided by an oxide, such as a ZrO_2 nanoparticle, while light absorption could be provided by another oxide, such as a TiO_2 nanoparticle. Peng and Ishii does not disclose or suggest these advantages because

the method of Peng focuses on joining under a normal atmosphere, which is generally not comparable to joining or brazing under an inert atmosphere and does not convert a surface layer of aluminum, while the mixture of Ishii also does not convert a surface layer of aluminum. Given the different natures of Peng and Ishii, it would not have been obvious to one of ordinary skill in the art to have combined the teachings of Peng and Ishii.

For at least the reasons discussed above, the combination of Peng and Ishii does not disclose or suggest all of the features of claim 1. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 5, 6, and 40 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Peng and Ishii in view of EP 1 287 941 to Englert *et al.* (hereafter "Englert"). This rejection is respectfully traversed. Englert fails to remedy the deficiencies of Peng and Ishii discussed above in regard to independent claim 1, from which claims 5 and 40 depend. Reconsideration and withdrawal of this rejection is respectfully requested.

New Claims

New claims 42 and 43 have been added and read on the elected invention and species. Claims 42 and 43 are allowable over the prior art for at least the reasons discussed above in regard to claim 1 and for any respective additional features.

Conclusion

Applicant submits that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or

even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date August 19, 2010

By

FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 295-4011
Facsimile: (202) 672-5399

Matthew A. Smith
Attorney for Applicant
Registration No. 49,003

Kevin L. McHenry
Attorney for Applicant
Registration No. 62,582